DOI: 10.1111/1475-6773.13121

RESEARCH ARTICLE

HSR Health Services Research

Racial/ethnic disparities in specialty behavioral health care treatment patterns and expenditures among commercially insured patients in managed behavioral health care plans

Kimberly Narain MD, PhD, MPH[1] | Haiyong Xu PhD[1] | Francisca Azocar PhD[2] | Susan L. Ettner PhD[1,3]

[1]Division of General Internal Medicine and Health Services Research, Department of Medicine, David Geffen School of Medicine, University of California, Los Angeles, Los Angeles, California

[2]Optum®, UnitedHealth Group, San Francisco, California

[3]Department of Health Policy and Management, Fielding School of Public Health, University of California, Los Angeles, Los Angeles, California

Correspondence
Kimberly Narain, MD, PhD, MPH, Division of General Internal Medicine and Health Services Research, Department of Medicine, David Geffen School of Medicine, University of California, Los Angeles, Los Angeles, CA.
Email: knarain@mednet.ucla.edu

Funding information
National Institute on Drug Abuse, Grant/Award Number: 1R01DA032619-01

Objective: To document differences among racial/ethnic/gender groups in specialty behavioral health care (BH) utilization/expenditures; examine whether these differences are driven by probability vs intensity of treatment; and identify whether differences are explained by socioeconomic status (SES).

Data Source: The cohort consists of adults continuously enrolled in Optum plans with BH benefits during 2013.

Study Design: We modeled each outcome using linear regressions among the entire sample stratified by race/ethnicity, language and gender. Then, we estimated logistic regressions of the probability that an enrollee had any spending/use in a given service category (service penetration) and linear regressions of spending/use among the user subpopulation (treatment intensity). Lastly, all analyses were rerun with SES controls.

Data Collection: This study links administrative data from a managed BH organization to a commercial marketing database.

Principal Findings: We found that in many cases, racial/ethnic minorities had lower specialty BH expenditures/utilization, relative to whites, primarily driven by differences in service penetration. Among women, relative to whites, Asian non-English speakers, Asian English speakers, Hispanic non-English speakers, Hispanic English speakers, and blacks had $106, $95, $90, $48, and $61 less in total expenditures. SES explained racial/ethnic differences in treatment intensity but not service penetration.

Conclusions: In this population, SES was not a major driver of racial/ethnic differences in specialty BH utilization. Future studies should explore the role of other factors not studied here, such as stigma, cultural competence, and geography.

KEYWORDS
behavioral health care, racial/ethnic disparities

1 | INTRODUCTION

Approximately one in five adults in the United States experience mental illness (MI) in a given year, and more than 20 million individuals suffer from a substance use disorder (SUD). Behavioral health conditions are the leading cause of disability in the United States and are estimated to cost the United States more than 190 billion dollars per year, in unearned income.[1] Higher rates of chronic mental illness and mental illness-associated morbidity have been documented for some racial and ethnic groups, relative to whites.[2] Differences in

 © Health Research and Educational Trust

behavioral health treatment may underlie these disparate outcomes in mental illness-associated morbidity. Underuse of pharmacotherapy and individual psychotherapy in several different racial and ethnic minority populations has been documented. However, racial and ethnic differences in the utilization of specialty behavioral health care, outside of individual psychotherapy, are less understood. We know much less about differences in utilization of group/family psychotherapy, structured outpatient/residential treatment, and inpatient therapy.[3-6]

Using survey data, prior studies have found unconditional differences (ie, among the entire population, not just limited to individuals receiving services) in behavioral health care utilization across racial/ethnic minorities and non-Hispanic whites. Specifically, racial and ethnic minorities have fewer visits for behavioral health care in general and receive less individual psychotherapy.[4,7-9] Using the National Institute of Mental Health Collaborative Psychiatric Epidemiology Surveys, Alegria et al[4] found that among individuals with depression, 69, 64, and 59 percent of Asians, Hispanics, and blacks, respectively, did not receive any mental health care in the past year compared to 40 percent of non-Hispanic whites. Fiscella et al explored differences across racial/ethnic groups in the likelihood of having had any visit with a mental health provider as well the role of ethnicity/language interactions in these differences. Using data from the Community Tracking Survey (1996-1997), they found among insured blacks, non-Hispanic whites, English-speaking Hispanics, and non-English-speaking Hispanics that only blacks and non-English-speaking Hispanics were significantly less likely to have had any visit with a mental health provider, relative to non-Hispanic whites.[10]

Chen and Rizzo[7] examined racial/ethnic differences in psychotherapy utilization among individuals with either depression or anxiety, using Medical Expenditure Panel Survey (MEPS) data. They found that among patients receiving any mental health care, Hispanics used less psychotherapy than non-Hispanic whites; however, this difference became negligible after controlling for language. Cook et al[8] also used MEPS data to explore racial/ethnic differences in the receipt of mental health care and found that among patients screening positive for depression or psychological distress, blacks and Hispanics were less likely than non-Hispanic whites to initiate mental health care.

A limitation of these studies is their reliance on patient reports. Compared to self-reported survey data, claims data have been shown to be a more valid source of information for health care utilization, particularly outpatient care.[11] A few studies have used administrative data to examine differences in behavioral health care utilization.[3,6,12] These studies have shed light on differences in behavioral health care utilization among racial/ethnic minorities receiving any mental health care (conditional differences). Blanco et al used several panels of the National Ambulatory Medical Care Survey (NAMCS), a provider visit-based survey, to explore differences in behavioral health care utilization trends among individuals with psychiatric diagnoses. They found a lower number of visits to psychiatrist and lower rates of psychotherapy utilization among Hispanics relative to non-Hispanics, controlling for age, sex, payment source, and population growth. Busch et al[6] used claims data from Medicaid managed care and mental health carve-out plans in Florida to explore predictors of behavioral health care quality among patients with schizophrenia and found that blacks and Hispanics were more likely than whites to have gone 60 days or more without any mental health visits (diagnostic/assessment, medication management, psychotherapy), controlling for age, gender, and comorbid substance use disorder. Coleman et al (2016) used medical record and claims data from 11 not-for-profit health care systems to examine racial/ethnic differences in psychotherapy utilization among patients with any mental health diagnosis. A number of racial/ethnic groups were featured in the study population, including blacks, whites, Hispanics, and Asians. Coleman et al[3] found that Asians were the only racial/ethnic subgroup to have a lower probability of utilizing psychotherapy than non-Hispanic whites. Hahm et al[13] used medical records from an urban New England health care system (2010-2012) to explore race/ethnicity/gender interactions in mental health care utilization differences and found that black and Hispanic men, screening positive for depression, were much less likely to have received any mental health care than their female counterparts.

The objectives of the current study are to document unconditional differences among racial/ethnic groups in behavioral health care utilization by service type (assessment/diagnostic evaluation, medication management, and individual, group, and family psychotherapy visits; days of structured outpatient, day treatment, residential care, and inpatient care) and by payer (patient, plan, and total). We then identify the extent to which these differences are explained by socioeconomic factors (education, income, and net worth). Lastly, we examine the extent to which racial/ethnic differences in expenditure/utilization are attributable to service penetration (ie, the probability of using any services) vs the intensity of service use after an individual has entered treatment.

Our study makes the following contributions to the literature: It explores unconditional differences in behavioral health care utilization among racial/ethnic minorities as well as conditional differences; it uses claims data to explore racial/ethnic differences in behavioral health care utilization for more service types than previously explored (including group and family psychotherapy visits; days of structured outpatient, day treatment, residential care, and inpatient care) and it does so among the general population rather than a conditional subgroup; and it explores the impact of several different measures of socioeconomic status on behavioral health care utilization, a potential driver of the relationship between race/ethnicity and behavioral health care utilization.[14] Additionally, this study links 2013 administrative data (insurance claims, eligibility, and provider supply data) from a large managed behavioral health organization (MBHO) to commercial marketing data for nearly 1.4 million adults, continuously enrolled in "carve-in" plans (ie, those administering both behavioral health and medical benefits together). By using a population of individuals continuously enrolled in a commercial health insurance plan, this study has the added advantage of ruling out differences in insurance coverage as an explanation for racial/ethnic differences in behavioral health care utilization.

2 | METHODS

2.1 | Data and study design

The study data were obtained from Optum®, UnitedHealth Group, which is one of the largest MBHOs in the country. Optum currently

contracts with 2500 facilities and 130 000 providers to serve approximately 2500 customers (including UnitedHealthcare and other commercial medical insurance plans in addition to employer groups), with 60.9 million members distributed across all U.S. states and territories. Our data included: (a) specialty behavioral health insurance claims providing detailed information on utilization, expenditures, and diagnosis; (b) enrollment eligibility and demographics; (c) employer and plan characteristics from Optum's Book of Business; and (d) sociodemographic data from a commercial marketing database for a subset of enrollees.

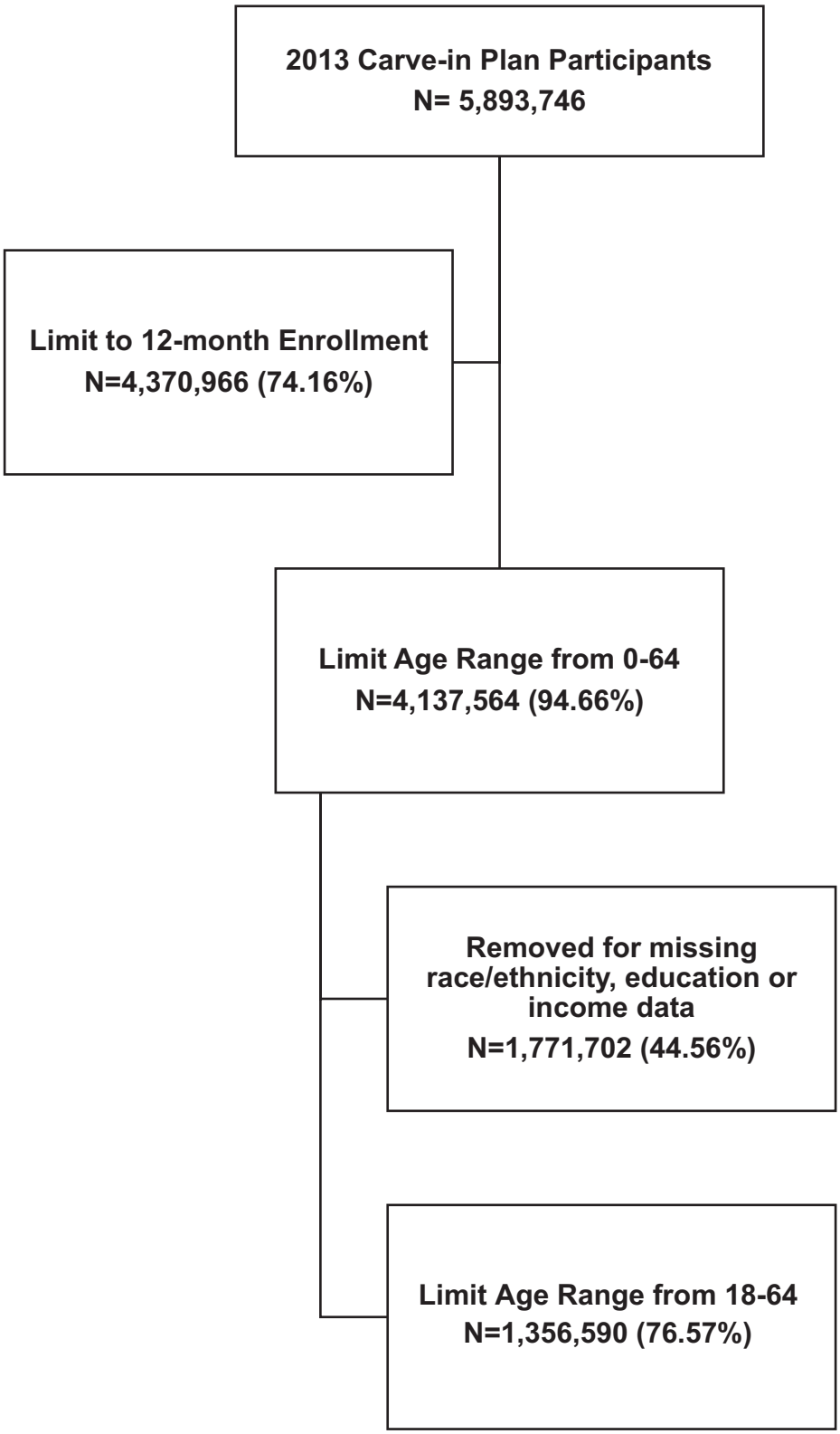

FIGURE 1 Population size flowchart

2.2 | Population

The study cohort consists of adults, aged 18-64, residing in the 50 U.S. states who were continuously enrolled during 2013 in Optum "carve-in" plans that (a) included behavioral health benefits (excluding employee assistance program and work/life-only plans); and (b) were not retiree, supplemental, or indemnity plans. The final population included 1 356 590 enrollees. The sample size flowchart can be found in Figure 1.

2.3 | Outcomes

Outcomes were annual specialty behavioral health care utilization and expenditures. Outpatient utilization measures separately counted visits for assessment/diagnostic evaluation; medication management; individual, family, and group psychotherapy; and days of structured/intensive outpatient services. Intermediate care measures separately counted days of residential care and day treatment. Acute inpatient utilization was measured by the number of days spent in the hospital. Plan expenditures were the sum of payments made by Optum and "coordination of benefits" payments by other insurers. Patient out-of-pocket expenditures consisted of copayments, coinsurance, and deductibles. Total expenditures were the sum of plan and patient out-of-pocket expenditures. All expenditure variables combined dollars spent on all outpatient, intermediate, and inpatient services.

2.4 | Socioeconomic status measures

Our socioeconomic measures included an education variable and a combined household income and net worth variable. The education variable was a categorical variable including the categories less than high school, some college, associate degree, and bachelor's or graduate degree. The combined household income and net worth variable was also categorical, consisting of 10 categories. The household income values ranged from undocumented income to ≥150K, and the net worth values ranged from ≤25K to ≥500K (see Table 1 for more details on these measures).

2.5 | Other covariates

Other covariates included enrollee age group and state of residence, census division, employer size category and industry, and whether the plan was more vs less managed, whether the enrollee was a subscriber or dependent, marital status (see Table 1 for categories), and number of nonspouse dependents within the family by age group. Diagnostic categories were also created for the conditional models examining utilization and expenditures among patients receiving care.

2.6 | Statistical analysis

For each outcome, we first modeled the unconditional mean (mean among all enrollees) using linear regression. To understand the extent to which overall differences in key endpoints (total expenditures, individual psychotherapy, and medication management visits) were attributable to service penetration vs intensity of treatment, we also estimated logistic regressions of the probability that an enrollee had any spending/use in the given category and linear regressions of spending/use among the conditional sample of "users," that is, the subset of enrollees with positive values for the dependent variable. We report robust "sandwich" standard errors using generalized estimating equations, to account for employer-level sampling and the nesting of months within people within plans within employers.[15,16] Due to the large sample sizes, we used *P*-value <0.001 as our cutoff for statistical significance. All statistical models were stratified by race/ethnicity. Given that language differences in the setting of absent or untrained interpreters may result in the misunderstanding of both symptoms provided by patients and treatments suggested by providers, the differences in specialty behavioral health care utilization among non-English-speaking individuals may be more pronounced than those among English-speaking individuals.[17] Consequently, models of Asians and Hispanics were additionally stratified by language (English vs non-English) to assess for this language/ethnicity interaction.[10,13] Models of blacks and whites were not stratified to preserve statistical de-identification, due to very small numbers of non-English speakers. Gender stereotypes in the United States that discourage emotional vulnerability and expressivity by men may have negative implications for the behavioral health care-seeking behavior of men, exacerbating specialty behavioral health care utilization differences in men, relative to women.[18] To assess for race/ethnicity/gender interactions, statistical models were also stratified by gender (male vs female). In addition to the main regression specifications, all analyses were rerun with controls for socioeconomic status. Results from the two specifications were compared in order to ascertain the extent to which differences among groups defined by race, ethnicity, and language were robust to holding socioeconomic factors constant. Including socioeconomic status in the regression models generally increased adjusted *R*-squared, most notably for expenditures, individual and family psychotherapy, and medication management (with percent increases in adjusted R-squared ranging from about 4 to 32 percent).

3 | RESULTS

Descriptive statistics for the population, stratified by gender and age, can be found in the Appendix Table S1. The percentage ranges for Asian English, Asian non-English, blacks, Hispanic English and Hispanic non- English were 2.6-4.7, 1.7- 3.1, 8.1-9.8, 4.2-6.3, and 5.4-6.8 across our subpopulations, respectively. We also calculated descriptive statistics for expenditures and SES stratified by gender, age, and race/ethnicity (not shown). Percentage ranges for having any behavioral health care expenditures among Asian English, Asian non-English, Hispanic English, Hispanic non-English speakers, blacks, and whites, across our subpopulations,

TABLE 1 Characteristics of the study population

	Men 18-64 (N = 665 460)	Women 18-64 (N = 691 130)
Race/ethnicity/language (%)		
Asian, English preference	2.62	2.81
Asian, other language	3.05	2.85
African American/black, any	8.13	9.81
Hispanic/Latino, English preference	4.18	5.09
Hispanic/Latino, other language	6.78	5.43
Caucasian/white, any	70.94	69.5
Other race/ethnicity, any	4.31	4.51
Education (%)		
Less than high school	22.16	22.36
Some college	42.88	43.32
Associate degree	11.65	11.47
Bachelor's or graduate degree	23.31	22.84
Household income and net worth (%)		
HH income uncoded, net worth <150K	6.52	7.06
HH income uncoded, net worth ≥150K	8.86	8.73
HH income <75K, net worth <25K	11.16	12.58
HH income <75K, 25K < net worth <100K	6.92	7.85
HH income <75K, net worth ≥100K	9.83	12.13
75K ≤ HH income <150K, net worth <100K	8.09	6.6
75K ≤ HH income <150K, 100K ≤ net worth <250K	10.83	9.67
75K ≤ HH income <150K, net worth ≥250K	15.98	16.09
HH income ≥150K, net worth <500K	9.51	8.03
HH income ≥150K, net worth ≥500K	12.29	11.26
Age group (%)		
18-24	14.6	13.76
25-34	19.15	19.67
35-44	23.04	23.08
45-54	24.01	24.08
55-64	19.2	19.42
Subscriber (vs dependent) (%)	69.12	48.89
Relationship type (%)		
Single	47.44	48.09
Same-sex domestic partner	0.55	0.3
Different-sex domestic partner	1.02	1.02
Same-sex spouse	0.15	0.11
Different-sex spouse	50.83	50.48
Number of dependents other than partner, by age group, mean (SD)		
Age: 0-3	0.09 (0.32)	0.09 (0.32)
Age: 4-8	0.18 (0.48)	0.18 (0.47)
Age: 9-12	0.16 (0.44)	0.16 (0.43)
Age: 13-17	0.24 (0.54)	0.23 (0.53)
Age: 18-24	0.45 (0.79)	0.43 (0.77)
Age: 25-34	0.06 (0.25)	0.06 (0.25)

(Continues)

TABLE 1 (Continued)

	Men 18-64 (N = 665 460)	Women 18-64 (N = 691 130)
Age: 35-44	0.00 (0.03)	0.00 (0.03)
Age: 45-54	0.00 (0.02)	0.00 (0.02)
Age: 55-64	0.00 (0.01)	0.00 (0.01)
Age: ≥65	0.00 (0.01)	0.00 (0.01)
Census divisions (%)		
New England	3.96	3.63
Middle Atlantic	11.01	10.81
East North Central	13.42	13.7
West North Central	9.4	9.52
South Atlantic	20.19	20.48
East South Central	4.1	4.15
West South Central	15.4	15.05
Mountain	11.27	11.77
Pacific	11.26	10.9
Employer group size (%)		
>40K enrolled employees	17.39	19.31
>10K & ≤40K	46.82	45.6
5000-10 000	17.64	17.75
<5000	18.15	17.34
Employer industry (%)		
Agriculture, Forestry, Fishing, and Hunting	0	0
Mining	2.12	1.84
Utilities	1.93	2.08
Construction	2.75	2.17
Manufacturing	6.3	5.25
Wholesale Trade	1.98	1.62
Retail trade	1.84	2.28
Transportation and Warehousing	15.93	14.07
Information	2.8	2.61
Finance and Insurance	9.88	11.13
Professional, Scientific, and Technical Services	3.59	3.32
Management of Companies and Enterprises	0.36	0.46
Educational services	0.26	0.36
Health care and social assistance	1.97	2.93
Arts, Entertainment, and Recreation	2.25	2.03
Accommodation and Food service	0.5	0.47
Other services (except public administration)	0.9	0.9
Public administration	0.5	0.45
Unknown	44.14	46.02
Health plan characteristics		
Plan type (%)		
More managed (eg, HMO)	97.65	97.45
Less managed (eg, PPO)	2.35	2.55

were 2.1-5.1, 1.5-2.8, 4.1-6.4, 4.5-7.7, 3.6-5.4, and 6.3-9.2, respectively. Percentage ranges for having a bachelor's degree or higher, among adult Asian English, Asian non-English, Hispanic English, Hispanic non-English speakers, blacks, and whites, were 38.4-39.3, 49.2-49.3, 16.3-17.2, 7.8-8.6, 6.7-6.8, and 24.6-25.0, respectively.

3.1 | Adjusted differences in outcomes among Asian English speakers vs whites

Among women and men, Asian English speakers had lower utilization and expenditures than whites in all categories, although in a few cases, the differences were not statistically significant (group psychotherapy for women, inpatient care for men, structured outpatient for both men and women). For example, among the entire population of women, Asian English-speaking women had $95 less in total expenditures, 0.10 fewer visits for medication management, and 0.43 fewer visits for individual psychotherapy, relative to white women. Average total expenditures, medication management visits, and individual psychotherapy visits for white women were $139, 0.18, and 0.58, respectively, in 2013. This translates into 68 percent less expenditures, 56 percent fewer medication visits, and 74 percent fewer individual psychotherapy visits, among Asian English-speaking women, relative to white women, annually. Furthermore, differences in expenditures and utilization were unchanged by controlling for SES (Table 2).

3.2 | Adjusted differences in outcomes among Asian non-English speakers vs whites

Among women and men, Asian non-English speakers had significantly lower utilization and expenditures than whites in all categories, with the exception of inpatient care. Again, differences were unchanged by controlling for SES (Table 2).

3.3 | Adjusted differences in outcomes among Hispanic English speakers vs whites

Among women, Hispanic English speakers had significantly lower expenditures and fewer psychotropic drug management and individual and group psychotherapy visits than whites. Among men, Hispanic English speakers also had significantly lower psychotropic drug management and individual and family psychotherapy visits than whites, although differences in expenditures (while negative) were nonsignificant. After controlling for SES, the magnitude of most of these differences declined slightly, and in one case, the differences lost significance (family psychotherapy for men; Table 3).

TABLE 2 Differences in specialty behavioral health care utilization and expenditures between Asians and whites, with and without controls for socioeconomic status

	Asian English speakers				Asian non-English speakers			
	Women[a]		Men[b]		Women[c]		Men[d]	
Outcome	w/o SES	With SES	w/o SES	With SES	w/o SES	With SES	w/o SES	With SES
Expenditures ($)								
Total	**−95.06**	**−100.64**	**−81.69**	**−84.40**	**−106.67**	**−118.69**	**−81.50**	**−87.64**
Plan	**−70.46**	**−74.10**	**−60.85**	**−62.54**	**−74.99**	**−83.16**	**−59.12**	**−62.96**
Patient	**−24.60**	**−26.54**	**−20.84**	**−21.86**	**−31.69**	**−35.53**	**−22.39**	**−24.68**
Utilization (visits)								
Assessment and evaluation	**−0.03**	**−0.03**	**−0.02**	**−0.02**	**−0.04**	**−0.04**	**−0.03**	**−0.03**
Rx management	**−0.10**	**−0.11**	**−0.09**	**−0.09**	**−0.16**	**−0.17**	**−0.10**	**−0.11**
Individual psychotherapy	**−0.43**	**−0.46**	**−0.26**	**−0.28**	**−0.55**	**−0.62**	**−0.34**	**−0.38**
Family psychotherapy	**−0.03**	**−0.03**	**−0.02**	**−0.02**	**−0.03**	**−0.03**	**−0.03**	**−0.03**
Group psychotherapy	−0.01	**−0.01**	**−0.02**	**−0.02**	**−0.01**	**−0.01**	**−0.01**	**−0.01**
Utilization (d)								
Structured outpatient	−0.02	−0.02	**−0.03**	**−0.03**	**−0.03**	**−0.03**	**−0.03**	**−0.03**
Day treatment	**−0.01**	**−0.01**	−0.01	−0.01	**−0.01**	**−0.01**	**−0.01**	**−0.01**
Residential	**−0.01**	**−0.01**	**−0.01**	**−0.01**	**−0.01**	**−0.01**	**−0.01**	**−0.01**
Inpatient	**−0.01**	**−0.01**	−0.01	−0.01	−0.01	−0.01	−0.01	−0.01

Notes: The study population includes individuals enrolled continuously in carve-in plans of a managed behavioral health care organization during 2013. OLS models control for enrollee age group, employer size category, employer industry type, whether the plan was more or less managed, state of residence, whether the enrollee is subscriber or dependent, marital status, and number of nonspouse dependents within the family by age group. We use robust "sandwich" standard errors using generalized estimating equations, to account for employer-level sampling and the nesting of months within people within plans within employers. The reference category for all results is non-Hispanic white. Results with *P*-values <0.001 are bolded.
[a]N = 19 404; [b]N = 17 408; [c]N = 19 723; [d]N = 20 314.

3.4 | Adjusted differences in outcomes among Hispanic non-English speakers vs whites

Relative to white non-Hispanic women and men, Hispanic non-English-speaking women and men had significantly lower expenditures and utilization in every category examined. In most cases, controlling for SES somewhat decreased the magnitude of the differences, and in quite a few cases, statistical significance was lost (Table 3).

3.5 | Adjusted differences in outcomes among blacks vs whites

Among women and men, blacks had significantly lower utilization and expenditures than whites except for group psychotherapy and (for men) inpatient care. Controlling for SES reduced the magnitude of the differences in expenditures and individual psychotherapy visits across all subgroups. In addition, differences in some outcomes became insignificant among certain subpopulations (family psychotherapy visits among women and men and structured outpatient care among men; Table 4).

3.6 | Differences in service penetration vs treatment intensity among patients in care

For three key outcomes (total expenditures, psychotropic drug management visits, and individual psychotherapy visits), we looked at the extent to which differences among groups defined by gender, race, ethnicity, and language were driven by service penetration (ie, the probability that the individual had any expenditures or utilization in the given category) vs conditional levels, or treatment intensity (ie, the amount of expenditures or number of services among individuals with any). Across the board, relative to white non-Hispanics, those in all other groups had lower service penetration, that is, were less likely to have any behavioral health specialty expenditures and less likely to have any drug management and/or individual psychotherapy visits. Furthermore, controlling for SES had almost no discernible impact on these estimates (Appendix Tables S1-S3).

TABLE 3 Differences in specialty behavioral health care utilization and expenditures between Hispanics and whites, with and without controls for socioeconomic status

	Hispanic English speakers				Hispanic non-English speakers			
	Women[a]		Men[b]		Women[c]		Men[d]	
Outcome	w/o SES	With SES	w/o SES	With SES	w/o SES	With SES	w/o SES	With SES
Expenditures ($)								
Total	**−48.63**	**−44.59**	−30.07	−25.72	**−90.45**	**−78.30**	**−71.45**	**−59.16**
Plan	**−35.64**	**−33.87**	−23.82	−21.07	**−68.84**	**−62.54**	**−53.72**	**−45.78**
Patient	**−12.99**	**−10.73**	−6.25	−4.65	**−21.62**	**−15.76**	**−17.74**	**−13.38**
Utilization (visits)								
Assessment and evaluation	−0.01	−0.01	0.00	0.00	**−0.02**	**−0.02**	**−0.02**	**−0.02**
Rx management	**−0.04**	**−0.04**	**−0.04**	**−0.04**	**−0.10**	**−0.08**	**−0.08**	**−0.07**
Individual psychotherapy	**−0.19**	**−0.15**	**−0.11**	**−0.09**	**−0.35**	**−0.25**	**−0.21**	**−0.15**
Family psychotherapy	0.00	0.00	**−0.01**	−0.01	**−0.01**	−0.01	**−0.02**	**−0.01**
Group psychotherapy	**−0.01**	**−0.01**	−0.01	−0.01	**−0.01**	−0.01	**−0.01**	**−0.01**
Utilization (d)								
Structured outpatient	−0.02	−0.01	−0.01	−0.01	**−0.03**	**−0.03**	**−0.03**	**−0.02**
Day treatment	−0.01	−0.01	**−0.01**	**−0.01**	**−0.01**	**−0.01**	**−0.01**	**−0.01**
Residential	0.00	0.00	−0.01	−0.01	**−0.01**	**−0.01**	**−0.01**	**−0.01**
Inpatient	0.00	0.00	0.00	0.00	**−0.02**	**−0.02**	**−0.01**	**−0.01**

Notes: The study population includes individuals enrolled continuously in carve-in plans of a managed behavioral health care organization during 2013. OLS models control for enrollee age group, employer size category, employer industry type, whether the plan was more or less managed, state of residence, whether the enrollee is subscriber or dependent, marital status, and number of nonspouse dependents within the family by age group. We use robust "sandwich" standard errors using generalized estimating equations, to account for employer-level sampling and the nesting of months within people within plans within employers. The reference category for all results is non-Hispanic white. Results with *P*-values <0.001 are bolded.
[a]N = 35 146; [b]N = 27 799; [c]N = 37 520; [d]N = 45 087.

Greater heterogeneity was seen in the results looking at the levels of expenditures or utilization among individuals with any. For most of the outcomes and groups defined by gender, differences in conditional levels of the outcomes among groups defined by race, ethnicity, and language were not significant. The exceptions were as follows: Among individuals who had respectively any expenditures or individual psychotherapy visits, black and Hispanic non-English-speaking women had significantly lower total expenditures and fewer individual psychotherapy visits than white non-Hispanic women. Hispanic non–English-speaking women also had fewer conditional drug management visits. Among men receiving pharmacotherapy, Hispanic non-English-speaking men had fewer drug management visits than white men. Finally, among men receiving individual psychotherapy, both black and Hispanic English-speaking men had fewer visits than white men. It is notable that only one of these differences in conditional levels of expenditures or utilization (lower conditional expenditures among Hispanic non-English-speaking women) retained statistical significance after adjusting for SES differences among groups.

TABLE 4 Differences in specialty behavioral health care utilization and expenditures between blacks and whites, with and without controls for socioeconomic status

	Women[a]		Men[b]	
Outcome	w/o SES	With SES	w/o SES	With SES
Expenditures ($)				
Total	**−61.33**	**−52.43**	**−49.43**	**−39.03**
Plan	**−44.26**	**−40.06**	**−37.83**	**−31.21**
Patient	**−17.07**	**−12.37**	**−11.61**	**−7.82**
Utilization (visits)				
Assessment and evaluation	**−0.01**	**−0.01**	**−0.01**	**−0.01**
Rx management	**−0.07**	**−0.06**	**−0.06**	**−0.05**
Individual psychotherapy	**−0.26**	**−0.18**	**−0.16**	**−0.11**
Family psychotherapy	**−0.01**	−0.01	**−0.01**	−0.01
Group psychotherapy	−0.01	−0.01	−0.01	0.00
Utilization (d)				
Structured outpatient	**−0.02**	**−0.02**	**−0.02**	−0.01
Day treatment	**−0.01**	**−0.01**	**−0.01**	**−0.01**
Residential	**−0.01**	**−0.01**	**−0.01**	**−0.01**
Inpatient	**−0.02**	**−0.02**	0.00	0.00

Notes: The study population includes individuals enrolled continuously in carve-in plans of a managed behavioral health care organization during 2013. OLS models control for enrollee age group, employer size category, employer industry type, whether the plan was more or less managed, state of residence, whether the enrollee is subscriber or dependent, marital status, and number of nonspouse dependents within the family by age group. We use robust "sandwich" standard errors using generalized estimating equations, to account for employer-level sampling and the nesting of months within people within plans within employers. The reference category for all results is non-Hispanic white. Results with *P*-values <0.001 are bolded.

[a]N = 67 825; [b]N = 51 132.

4 | DISCUSSION

Racial/ethnic differences in morbidity from behavioral health conditions have been well documented, with minority groups faring worse relative to whites.[2] The extent to which differences in specialty behavioral health care utilization are contributing these morbidity differences is not clear. We found that in many cases, racial/ethnic minorities had a lower probability of having any behavioral health care expenditures and utilization, relative to whites. Within racial/ethnic and language subgroups, the pattern of expenditure/utilization differences is similar across genders for all but Hispanic English speakers; however, for many service types the magnitude of the difference is larger among women. These results are consistent with the work of Alegria et al[4] who found a lower probability of any behavioral health care utilization among racial/ethnic minorities with depression using self-reported utilization data. This work extends this study by exploring unconditional behavioral health care utilization differences across specific behavioral health care types (visits for assessment/diagnostic evaluation, medication management, and individual, group, and family psychotherapy; days of structured outpatient, day treatment, residential care, and inpatient care) and using claims data to measure utilization rather than self-report. Additionally, we demonstrate that in most cases, differences in service penetration across racial/ethnic groups were not explained by SES.

Our analyses showed that relative to whites, all racial/ethnic subgroups had lower rates of individual psychotherapy utilization, and these differences were primarily driven by lower service penetration rather than differences in service use intensity. Furthermore, conditional differences in individual psychotherapy utilization became insignificant with controls for SES, in the few subgroups where differences were present. These findings are consistent with the conclusions of Chen and Rizzo,[7] who do not find a lower probability of individual psychotherapy utilization among blacks and Hispanics with anxiety or depression, using MEPS office-based visit data. However, these results are inconsistent with those of Coleman et al,[3] who find a lower rate of individual psychotherapy utilization, conditional on any behavioral health care use, among Asians, relative to whites. Differences in results may be driven by differences in number of covariates adjusted for across the two studies given that the Coleman et al study does not control for any individual-level covariates. Additionally, the Coleman et al[3] study uses data from a nonprofit rather than a for-profit health care system.

Our conclusions should be interpreted in light of certain study limitations, including the lack of measures of illness severity and care quality as well as the absence of data from primary care visits. Consequently, this study cannot rule out differences in need as an alternative explanation for utilization differences across racial/ethnic groups. Additionally, racial/ethnic minorities may be more likely to receive behavioral health care services in the primary care setting than whites due to stigma, and consequently, some utilization differences may be potentially overstated in this respect. However, given the voluminous literature suggesting that racial/ethnic minority groups tend to be disadvantaged in many ways that are correlated with greater mental health needs (eg, stress associated with discrimination or financial insecurity), our findings are just as likely to under- as overstate differences in specialty behavioral health care services utilization.[19,20]

Another potential limitation of this study is the inability to control for geography at a more fine-grained level than state, given that racial/ethnic minorities often live in segregated areas and this segregation may limit access to behavioral health care services.[21,22] Additional structural barriers to consider that have not been examined in this study include provider availability and practice hours of operation. However, inability to examine these specific structural factors is not likely a substantial limitation for this study because differences in utilization driven by structural factors would likely be present in both the unconditional and conditional results. If the strong racial/ethnic differences seen in service penetration are driven solely by geographic access, we would likely expect to see similar differences in the conditional intensity of use. Nonetheless, geographic access to care is one important possible interpretation of the racial/ethnic differences found in our study.

Lastly, the ability to generalize our study findings may be limited to Optum patients, although given the enormous size, geographic coverage (all 50 states), and diversity of this patient population, we do not consider this to be a significant limitation. As Optum was the largest MBHO in the nation during our study period, we believe that Optum enrollees are representative of the MBHO population overall. In turn, MBHOs administer behavioral benefits on behalf of two-thirds of insured patients.[23]

Given the consistent pattern that members of racial/ethnic minority groups are less likely to receive services but (after adjusting for SES) have similar patterns of care intensity once they have entered treatment, our results suggest that racial/ethnic differences in behavioral health care utilization in our cohort may not be primarily driven by provider bias. Barriers more likely to play a significant role in these differences are those that might inhibit individuals from seeking care to begin with, including perceived need, perceived stigma, provider mistrust, and lack of cultural competence of primary care providers (which may lead to an underdiagnosis of behavioral health care conditions and limit referrals to specialty behavioral health care providers).[19,24,25]

A number of interventions have been suggested to address barriers to behavioral health care among racial/ethnic minorities. Increasing behavioral health care integration into primary care has been explored as a strategy to both reduce stigma and improve geographic access to behavioral health care for racial/ethnic minorities.[26,27] Telemedicine has also shown promise for improving access to behavioral health care for racial/ethnic minorities.[28,29] Lastly, there is preliminary evidence that the adoption of culturally competent assessment practices in the primary care setting may improve racial/ethnic disparities in access to behavioral health care.[30] Future studies should merge medical and behavioral health claims to ascertain the level of behavioral health care services being provided by primary care providers and to explore the implications of this care substitution for access to behavioral health care and the quality of behavioral health care provided to racial/ethnic minorities.

ACKNOWLEDGMENTS

Joint Acknowledgment/Disclosure Statement: We gratefully acknowledge support for this study from the National Institute on Drug Abuse (1R01DA032619-01), data from Optum®, UnitedHealth Group, and helpful comments from seminar participants at the University of California, Los Angeles. We would like to thank Brent Bolstrom and Nghi Ly from Optum®, UnitedHealth Group for the extraction, preparation and delivery of data to UCLA. The academic team members analyzed all data independently and retained sole authority over all publication-related decisions throughout the course of the study.

CONFLICT OF INTEREST

Dr. Azocar is an employee of Optum®, UnitedHealth Group. As such, she receives salary and stock options as part of her compensation. All other authors declare they have no conflicts of interest.

DISCLAIMER

The views and opinions expressed here are those of the investigators and do not necessarily reflect those of the National Institutes of Health, Optum®, UnitedHealth Group or UCLA.

ORCID

Kimberly Narain https://orcid.org/0000-0001-8548-1728
Susan L. Ettner https://orcid.org/0000-0001-9445-8917

REFERENCES

1. National Alliance on Mental Illness. NAMI: National Alliance on Mental Illness | Mental Health By the Numbers. http://www.nami.org/Learn-More/Mental-Health-By-the-Numbers. Accessed February 15, 2017.
2. Kim M. Racial/ethnic disparities in depression and its theoretical perspectives. *Psychiatr Q*. 2013;85:1-8.
3. Coleman KJ, Stewart C, Waitzfelder BE, et al. Racial-ethnic differences in psychiatric diagnoses and treatment across 11 health care

systems in the Mental Health Research Network. *Psychiatr Serv*. 2016;67:749-757.
4. Alegria M, Chatterji P, Wells K, et al. Disparity in depression treatment among racial and ethnic minority populations in the United States. *Psychiatr Serv*. 2008;59:1264-1272.
5. Cook BL, Trinh N-H, Li Z, Hou SS-Y, Progovac AM. Trends in racial-ethnic disparities in access to mental health care, 2004-2012. *Psychiatr Serv*. 2017;68:9-16.
6. Busch AB, Lehman AF, Goldman H, Frank RG. Changes over time and disparities in schizophrenia treatment quality. *Med Care*. 2009;47:199-207.
7. Chen J, Rizzo J. Racial and ethnic disparities in use of psychotherapy: evidence from U.S. national survey data. *Psychiatr Serv*. 2010;61:364-372.
8. Cook BL, Zuvekas SH, Carson N, Wayne GF, Vesper A, McGuire TG. Assessing racial/ethnic disparities in treatment across episodes of mental health care. *Health Serv Res*. 2014;49:206-229.
9. York DG, Adelman J, Anderson JE Jr, et al. The sloan digital sky survey: technical summary. *Astron J*. 2000;120:1579.
10. Fiscella K, Franks P, Doescher MP, Saver BG. Disparities in health care by race, ethnicity, and language among the insured: findings from a national population. *Med Care*. 2002;40:52.
11. Zuvekas SH, Olin GL. Validating household reports of health care use in the medical expenditure panel survey. *Health Serv Res*. 2009;44:1679-1700.
12. Blanco C, Patel SR, Liu L, et al. National trends in ethnic disparities in mental health care. *Med Care*. 2007;45:1012-1019.
13. Hahm HC, Cook BL, Ault-Brutus A, Alegría M. Intersection of race-ethnicity and gender in depression care: screening, access, and minimally adequate treatment. *Psychiatr Serv*. 2014;66:258-264.
14. Dobalian A, Rivers PA. Racial and ethnic disparities in the use of mental health services. *J Behav Health Serv Res*. 2008;35:128-141.
15. Liang KY, Zeger SL. Regression analysis for correlated data. *Annu Rev Public Health*. 1993;14:43-68.
16. Colin Cameron A, Miller DL. A practitioner's guide to cluster-robust inference. *J Hum Resour*. 2015;50:317-372.
17. Flores G. Language barriers to health care in the United States. *N Engl J Med*. 2006;355:229-231.
18. Chandra A, Minkovitz CS. Stigma starts early: gender differences in teen willingness to use mental health services. *J Adolesc Health*. 2006;38:754e1-754.e8.
19. Carrington CH. Clinical depression in African American women: diagnoses, treatment, and research. *J Clin Psychol*. 2006;62:779-791.
20. Waite R, Killian P. Perspectives about depression: explanatory models among African-American women. *Arch Psychiatr Nurs*. 2009;23:323-333.
21. Fortney J. The impact of geographic accessibility on the intensity and quality of depression treatment. *LWW*. 1999. http://journals.lww.com/lww-medicalcare/Fulltext/1999/09000/The_Impact_of_Geographic_Accessibility_on_the.5.aspx. Accessed February 2, 2015.
22. Williams DR, Collins C. Racial residential segregation: a fundamental cause of racial disparities in health. *Public Health Rep*. 2001;116:404-416.
23. Ettner SL, Harwood MJ, Thalmayer A, et al. The Mental Health Parity and Addiction Equity Act evaluation study: impact on specialty behavioral health utilization and expenditures among "carve-out" enrollees. *J Health Econ*. 2016;50:131-143.
24. Mitchell AJ, Vaze A, Rao S. Clinical diagnosis of depression in primary care: a meta-analysis. *Lancet*. 2009;374:609-619.
25. Wills D. Clinical depression among African American women and barriers to treatment. Paper presented at the School of Social Work and Southern Institute for Mental Health Advocacy, Research & Training Research Conference, Jackson, Mississippi; 2005. http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.120.7490&rep=rep1&type=pdf
26. Ayalon L, Areán PA, Linkins K, Lynch M, Estes CL. Integration of mental health services into primary care overcomes ethnic disparities in access to mental health services between black and white elderly. *Am J Geriatr Psychiatry*. 2007;15:906-912.
27. Shim R, Rust G. Primary care, behavioral health, and public health: partners in reducing mental health stigma. *Am J Public Health*. 2013;103:774-776.
28. Deem J. The use of telemedicine mental health services increases access and medication compliance for Native American Veterans in rural locations. *Sch Phys Assist Stud*. 2015;532.
29. Fortney JC, Pyne JM, Turner EE, et al. Telepsychiatry integration of mental health services into rural primary care settings. *Int Rev Psychiatr*. 2015;27:525-539.
30. Kohn-Wood L, Hooper L. Cultural competency, culturally tailored care, and the primary care setting: possible solutions to reduce racial/ethnic disparities in mental health care. *J Ment Health Couns*. 2014;36:173-188.

SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of the article.

How to cite this article: Narain K, Xu H, Azocar F, Ettner SL. Racial/ethnic disparities in specialty behavioral health care treatment patterns and expenditures among commercially insured patients in managed behavioral health care plans. *Health Serv Res*. 2019;54:575–585. https://doi.org/10.1111/1475-6773.13121